Executive Summary

The California Water Plan: Investment in Innovation and Infrastructure

California water managers and elected officials are responsible for ensuring reliable and clean water supplies for a growing population, reducing flood risks to ensure public safety, and enhancing and restoring the state's ecosystems, all while safeguarding California's economy. These responsibilities exist at a time when the demands placed on natural resource-based assets and services are increasing and while funding for resource management is more and more limited. This necessitates doing more with less.

As mandated in the California Water Code, the California Water Plan (CWP) is the State's long-term strategic plan for guiding the management and development of water resources under these emerging conditions and expectations, and in the face of an uncertain future. *California Water Plan Update 2013* (Update 2013) provides a strategic vision and roadmap for California's water future that is informed and supported by hundreds of stakeholders; dozens of federal, State, and tribal entities; and nearly 40 other companion plans developed by myriad State agencies.

California Water Plan Vision

California has healthy, resilient watersheds and reliable and secure water resources and management systems. Public health, safety, and quality of life in rural, suburban, and urban communities are significantly improved as a result of advancements in integrated water management. The water system provides the certainty needed for quality of life, sustainable economic growth, business vitality, and agricultural productivity. California's unique biological diversity, ecological values, and cultural heritage are protected and have substantially recovered.

Update 2013 does not create mandates, prioritize actions, or allocate funding. Instead, it provides a roadmap that informs legislative action, as well as planning and decision-making, at all levels of government. It characterizes water resource conditions in the state today, describes the factors that are driving change, recognizes challenges and impediments to effective solutions, and lays out a comprehensive suite of potential future actions intended to move California toward more sustainable management of water resources and more resilient water management systems. Ultimately, sustainability and resiliency need to be measured in terms of improved public safety (societal benefits), environmental stewardship (environmental benefits), and economic stability (financial benefits).

- Reduce flood risk Statewide.
- Provide safe drinking water.
- Improve water quality for fisheries and recreation.

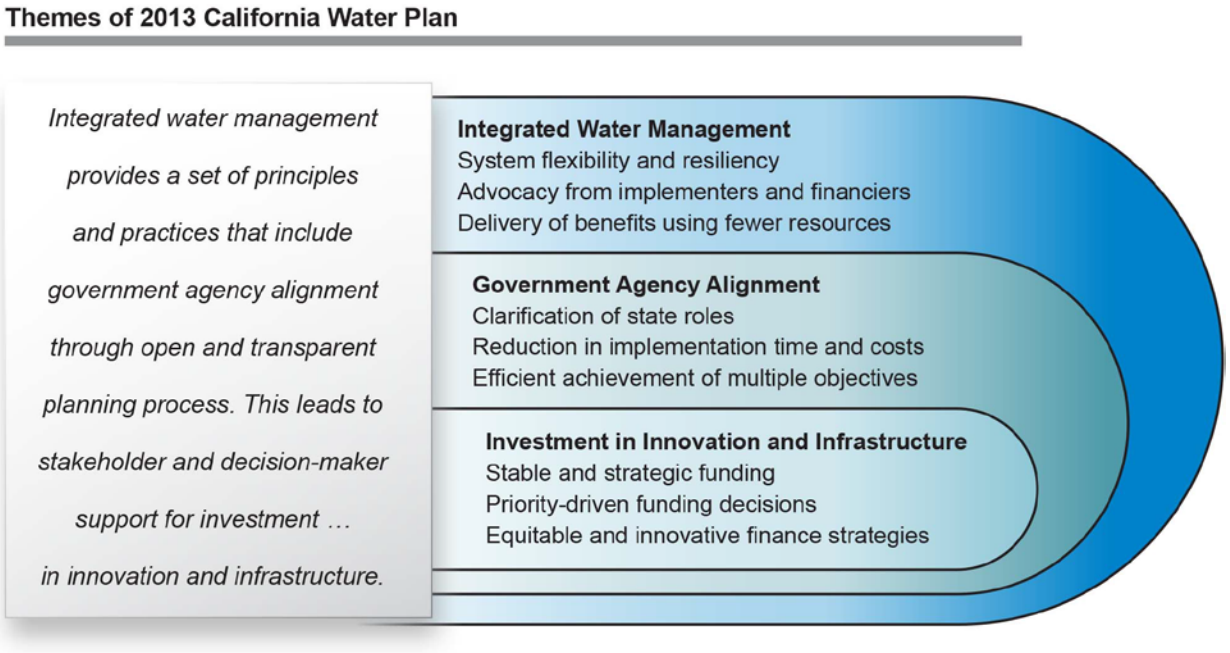
- Enhance Bay-Delta ecosystem.
- Restore terrestrial and aquatic habitats.
- Improve watershed management.
- Raise awareness and increase stewardship.

- Enhance State economic output.
- Contribute to job creation and security.
- Promote food production security.
- Provide stable funding for infrastructure.

A Call for Action: Integration, Alignment, and Investment

Despite significant investments made in management and improvement of the state's natural and human-made water resource infrastructure over the past few decades, Californians today face rising and unacceptable risks from flooding, water shortages, unhealthy water quality, and ecosystem degradation. These challenges will only intensify in the future without bold action backed by stakeholder support. Many of California's ecosystems and much of our water supply and flood protection infrastructure are no longer functioning properly or have exceeded their life cycles. For example, many communities depend on aging water supply and flood management infrastructure badly in need of maintenance or replacement; many essential species and ecosystems are rapidly declining; and some Californians do not have access to safe, clean drinking water. To compound the situation, such stressors as climate change, earthquakes, and lack of stable funding further threaten the integrity and reliability of the state's water supply, flood protection, and environmental systems.

Update 2013's strategies and actions promote three themes to address the challenges facing California today: 1) advance integrated water management (IWM); 2) strengthen government agency alignment; and 3) invest in innovation and infrastructure. The themes are interconnected and work together.



Advance Integrated Water Management

With Update 2013, the State is renewing its commitment to IWM. IWM is a strategic approach to planning and implementing water management programs that combines flood management, environmental stewardship, and water supply actions to deliver multiple economic, environmental, and social benefits across watershed and jurisdictional boundaries. The IWM approach provides a set of principles and practices that strengthen government agency alignment and efficiencies through collaborative and transparent planning. This in turn promotes stakeholder and decision-maker support for cost-effective investments in multi-benefit projects and more diversified water portfolios. This support provides increased advocacy, as well as a greater number and variety of potential implementers and

financiers. The result is more efficient, effective, and regionally appropriate water resource planning and management that leads to higher returns on investment; actions with more sustainable outcomes; and greater water system resiliency and adaptability to future challenges, such as growth and climate change.

The previous updates to the CWP introduced IWM as an effective approach to achieving more sustainable management of the state's water resources. Update 2013 represents an important next step in advancing IWM by articulating the outcomes or types of benefits of greatest value to stakeholders, and further clarifying and defining the scope and focus of IWM as an outcome-based approach. Desired outcomes include improved system flexibility and resiliency; increased advocacy for multi-beneficiary projects from potential implementers and financiers; and delivery of benefits at a faster pace, using fewer resources than are typically required to implement single-benefit projects. IWM and integrated regional water management (IRWM) practices have made strides over the past 12 years, and Update 2013 encourages the expansion and enhancement of these practices.

Strengthen Government Agency Alignment

California has a wide variety of climates, landforms, and institutions, as well as a diverse, place-based range of cultures, which can be described as *anthrodiversity* (e.g., the human aspect of biodiversity that denotes the value of sustaining varied human habitats, such as rural, suburban, and urban communities). For example, there are more than 2,300 public resource management agencies at four primary levels of government (federal, State, regional, and local). Californians' disparate priorities, beliefs, practices, and resource consumption rates define and support California's rich social diversity. The most effective and efficient solutions are an amalgam of diverse input and data from a large variety of elected officials, opinion leaders, stakeholders, scientists, and subject experts. These circumstances necessitate that data management, planning, policy-making, and regulation occur in a more collaborative, regionally appropriate manner. Sustainable outcomes will rely on a blend of subject expertise and perspectives woven together into comprehensive place-based and regionally appropriate policies and projects.

Discussions regarding water management priorities, including how they should be funded, often devolve into conflict, often with stakeholders or decision-makers operating from different sets of information prepared for disparate purposes. In most cases, the information is accurate but can be incomplete, drawn out of context, or based on fundamentally different assumptions. The outreach and collaboration process of Update 2013 has attempted to translate these different perspectives into practical information to enable decision-making and expedite implementation. For example, the future scenarios described in Chapter 5, "Managing an Uncertain Future," provide a framework for making common assumptions and applying analytical tools to align understanding of possible future water conditions across diverse stakeholder interests. This type of collaborative planning has yielded well-supported, implementable recommendations.

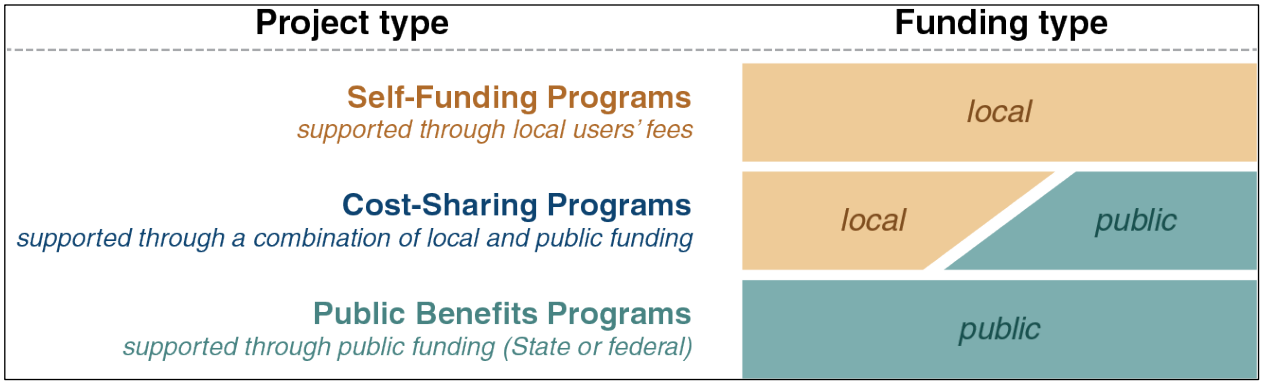
Update 2013 builds on strategies and actions to strengthen agency alignment from that presented in *California Water Plan Update 2009* (Update 2009). The primary purpose for improving alignment among and within federal, State, tribal, and local government agencies is to expedite implementation of resource management strategies and help assure efficient implementation of multi-benefit projects. (Refer to Volume 1, Chapter 4, "Strengthening Government Alignment," for a more detailed discussion.)

Invest in Innovation and Infrastructure

How California decides to prioritize and pay for necessary water resource management improvements is one of the most significant issues the state faces today. Past investments have provided a down payment and a good basis for further improvements; however, the financing methods of the past are no longer sustainable. The stakes are high as future investment decisions will significantly affect public safety, environmental stewardship, and economic stability. What is at stake includes flood risk to Californians' lives and assets; sustainability of natural resources, including the stewardship or extinction of species/habitats and the ecosystem services they can provide; and California's $2 trillion economy, which has significant value, both nationally and globally, and directly affects the fate of existing businesses, their employees, and their employees' families.

California has nearly $600 billion of assets and over 7 million people at risk of flooding. There are also over 10,000 projects identified within the 48 IRWM plans. In total, resource management actions will require up to $500 billion of future investment over the next few decades to reduce flood risk, provide reliable and clean water supplies, and enhance ecosystems and their services. The price tag is daunting, but failure to address these challenges will put more and more Californians at risk. We are beginning to integrate resource management and planning, but funding remains fragmented, unstable, and inefficient, which limits opportunities for further integration. In fact, many current funding practices/constructs, developed decades ago, drive investment priorities more so than emerging plans and stakeholder priorities (which have significantly changed over the last several decades). These rigid funding constricts also do not allow the adaptability necessarily to respond to emerging challenges.

Update 2013 calls for more strategic, disciplined, and aligned investments in innovation and infrastructure (both naturally occurring and human-made) and identifies shared stakeholder values and potential mechanisms for future financing. Moving forward, the State needs to clarify funding purposes, as well as assess and articulate the value of current and future expenditures, to secure the necessary investments that will deliver sustainable and resilient water resources. It will take decades to upgrade the aging water-related infrastructure and accomplish ecosystem improvements. However, we need to continue taking steps toward financing implementation of a diverse portfolio of water management actions with an equally diverse portfolio of funding sources, including self-funding, cost-sharing, and public benefit.



Self-Funding programs are primarily financed through revenue bond sales that are supported through users' fees. Many local major water-supply projects, including local and regional water-supply conveyance, treatment, distribution, and wastewater treatment, are included in this category. Some systemwide projects can also be included in this category. Small and isolated disadvantaged communities

are one exception, as many of their water supply systems need upgrades to provide adequate water supply and/or address their water quality issues. Typically, local/regional water purveyors' and wastewater agencies' user fees, with some exceptions, provide adequate funding for operation and maintenance of their water systems. Nonetheless, operation and maintenance of the flood management system by the State and local flood assessment districts is more challenging.

Cost-Sharing programs have local and regional benefits, as well as State and national benefits. Many of the proposed infrastructures fit within this category and are generally funded through a cost-shared agreement among the federal, State, and local agencies, depending on the program/project beneficiary. Examples of these types of projects include some regional water supply security projects and most flood protection projects. Many flood and community districts sell bonds secured by specific tax assessments to fund their capital improvements. Passage of Assembly Bill 218 in 1996 put new restrictions on this type of financing by requiring approval by two-thirds of voters. The result has been delays in some capital improvements and failure to approve others.

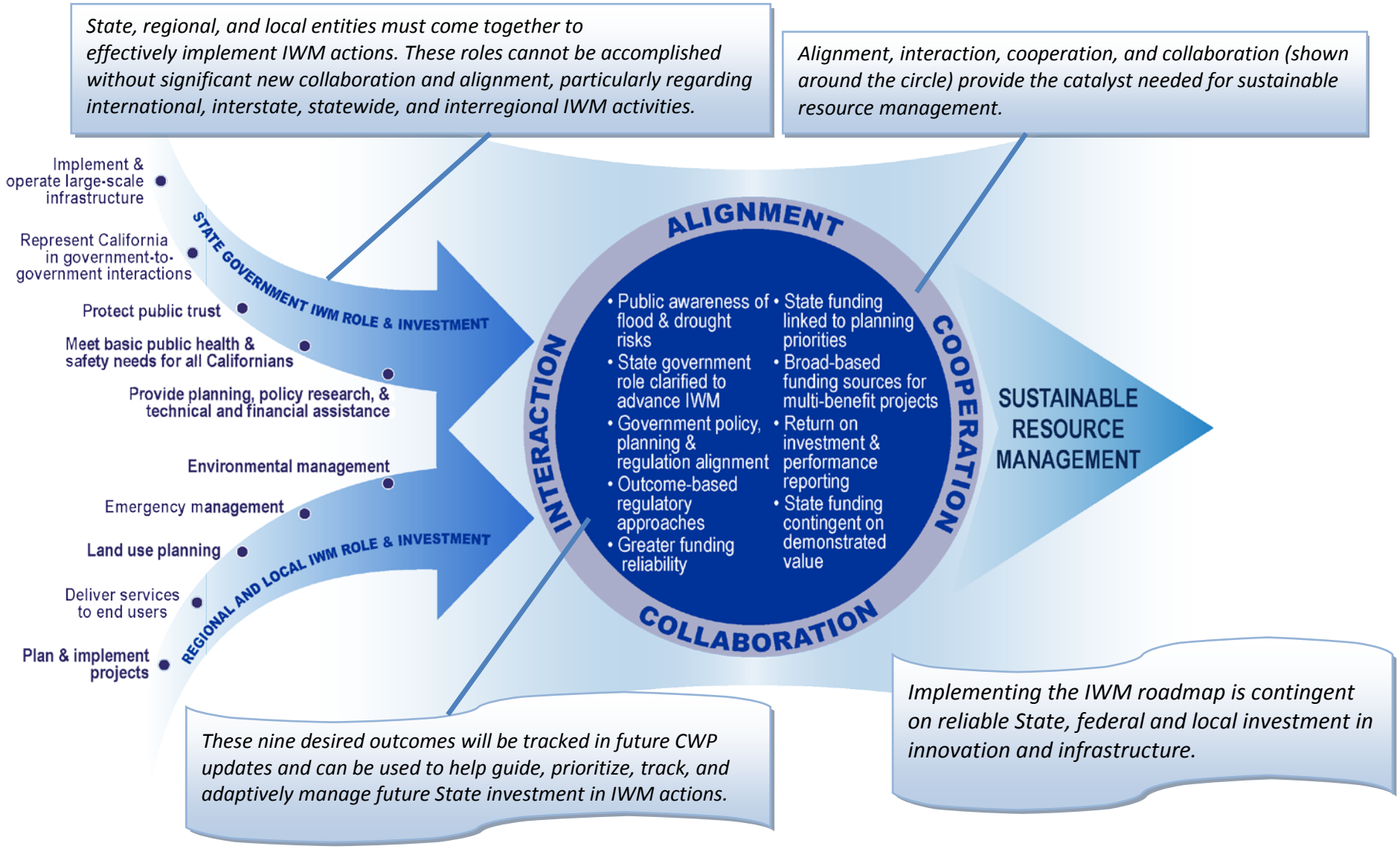
Public benefit programs have statewide and societal benefits. They are generally supported by State and federal public funding. Examples of these projects are the systemwide ecosystem enhancements, systemwide flood-risk reduction projects, and some watershed management programs. Cities, counties, and the State generally finance their capital improvement programs through General Obligation bonds, which are secured by full faith of the credit issuer. Many local agencies and disadvantaged communities may not have adequate funding or means of financing local shares of their infrastructure improvement through bond sales (i.e., lack of credit or high interest rates). In these cases, providing low-interest State and/or federal loans to local agencies to cover their local cost share of the project will be helpful.

Integrated Water Management in Action

The immediate and changing conditions, priorities, and challenges described in Update 2013 require that Californians step up existing efforts to provide integrated, reliable, sustainable, and secure water resources and management systems for our health, public safety, economy, and ecosystems — today and for generations. The State needs to continue to invest in innovation and infrastructure, as detailed in Chapter 7, "Finance Planning Framework." To accomplish this requires implementing a strategic water plan with vision and goals, and an implementation plan with objectives and near-term and long-term actions. The plan must build on State and stakeholder accomplishments since Update 2009, as well as the fundamental lessons of water resource management learned in recent years. The figure below emphasizes how State, regional, and local entities must come together (align) to deliver the resources needed to effectively implement (invest in) IWM actions. Several key IWM activities are summarized (in the arrows located on the left side of the figure, "Integrated Water Management in Action") for State, regional, and local government roles and investment. The roles of the respective government entities cannot be accomplished without significant new collaboration and alignment, particularly regarding international, interstate, statewide, and interregional IWM activities.

The outcomes shown in the circle represent key accomplishments that must occur to achieve the Update 2013 IWM vision and objectives. Volume 1, Chapter 8, lays out 17 objectives and a menu of more than 250 actions that can move California toward accomplishing the desired outcomes. These outcomes will be tracked in future CWP updates and can be used to help guide, prioritize, track, and adaptively manage future State investment in IWM actions. Alignment, interaction, cooperation, and collaboration (shown around the figure's circle) provide the catalyst needed for sustainable resource management.

Integrated Water Management in Action



Navigating the California Water Plan

While the entirety of Update 2013 is intended to inform the actions of water managers, the *Highlights* booklet (to be available in early 2014) and certain Volume 1 chapters are particularly helpful in advising future policies with a concise description of the water management needs facing California and with implementable recommendations to help accomplish the Update 2013 vision. Chapter 1, "Planning for Environmental, Economic, and Social Prosperity," provides a concise call for action from policy-makers, as well as a summary of major concepts that advance the State's commitment to IWM. Chapter 2, "Imperative to Invest in Innovation and Infrastructure," describes extensive conversations with stakeholders about the role of State government in IWM, the three themes for Update 2013, and how these themes can be used to support decisions. These conversations and the close collaboration with stakeholders, which used the vision, mission, goals, and principles as a compass, were instrumental in crafting the abovementioned 17 objectives and 250+ related actions discussed in Chapter 8, "Roadmap For Action." Chapter 8 also describes the vision and mission of Update 2013, IWM goals to help identify and prioritize future water management actions, and guiding principles to help planning and decision-making.

Even though the 17 objectives and the related actions are supported by hundreds of stakeholders and dozens of State agencies, they must be prioritized for implementation. These actions are intended to provide policy and lawmakers, resource managers and land use planners, communities and businesses, academia, and other water leaders with a foundation and framework for water planning and management, policies and practices, and public and private investments. They are also intended to inform legislative action for change.

To assist water managers with implementing these objectives and related actions, a "toolbox" of 30 resource management strategies is provided in Volume 3 of Update 2013. Federal, State, tribal, and local entities are encouraged to use these tools to advance IWM, strengthen agency alignment, and invest in innovation and infrastructure.

Integral to achieving the goals and objectives in Chapter 8, Chapter 7 provides a first-of-its-kind finance planning framework in which multiple requirements, perspectives, and previously non-integrated financing information can be considered. This framework is intended to be used as a cornerstone for stakeholders and policy-makers to work collaboratively through critical funding needs and issues, develop durable finance mechanisms, and identify reliable revenue sources.

The remaining chapters of Volume 1 (Chapters 3, 4, 5, and 6) provide the background and rationale for the actions described in Chapter 8.

Conclusion

Update 2013 provides a full description of California's planning backdrop and context, a call for action, and a recommended path toward sustainable water management. Update 2013 was crafted with extensive collaboration; it represents matters of most importance and urgency to stakeholders and several State agencies. The plan provides an actionable blueprint for California's water future. When combined with the planning backdrop and context, the Update 2013 "Roadmap For Action" provides practical, well-reasoned, and critical decision support that can be readily implemented by the governor, Legislature, and water leaders.